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Government Acquisition Through Electronic Commerce (GATEC) Government Standard Translator (GST) User's Guide

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SECTION 1 Introduction

The purpose of this User's Guide is to provide the necessary information to permit a trained user to successfully use the Government Standard Translator (GST) application to map a subset of the ANSI X12 EDI transaction sets. The GST application allows a user to create the flat file-to-X12 mappings required for the GATEC Translation Engine, which is used by the GATEC application to translate (convert) flat files in Common Data Format (CDF) to X12. It is sometimes required to modify these mappings as a result of changes to the published X12 standards. Since the GATEC application comes supplied with ANSI compliant mappings, the user will have existing mappings to work from which are very close to that which might be required as a result of changes.

The user of GST should be familiar with the X12 implementation conventions as specified by the DoD. These conventions are a small subset of the full ANSI X12 standards.

1.1 Identification

This User's Guide supports release 1.0 of the GST application. The GATEC application was developed under OSD (P&L) sponsorship and was applied to the GATEC project by staff of the Technology Information Systems Program (TISP) at the Lawrence Livermore National Laboratory (LLNL), operated by the University of California for the Department of Energy.

1.2 Project Overview

Lawrence Livermore National Laboratory (LLNL) developed a generic translation capability termed the Government Standard Translator (GST). The GST was developed under OSD (P&L) funding, as managed by DLA in the role as EC/EDI Executive Agent.

Before beginning work on a translator, LLNL reviewed the capabilities of several commercially available translators to see what they cost, their ease of building translations, and their speed of

translation. It was found that there wasn't a product on the market at the time (or even now) that had a low initial and long term maintenance cost, provided an intuitive interface for easily building and modifying translations, and was capable of meeting the throughput capabilities of the projects intended for its use. As a result, in the approximately a six month period, LLNL took on the task of building a Government-owned translator. That project was completed in July 1992 and the Government Standard Translator (GST) has been in use in several EC/EDI projects since that time.

This translator has the capability to translate files from any format to any other format. The GST actually consists of two separate parts. The software that performs this translation is called the Translation Engine. The Translation Engine acts upon files and uses a mapping template to actually perform the translation. The process of creating the mapping template is performed using the Translator Work Bench (TWB) application. Most users of GATEC will not have to ever interact with the TWB. Since the GST is not an X12-specific translator, knowledge of the X12 conventions is required; however, since it is able to act upon files of any format, there is no requirement to convert existing files into a pre-specified format before translating them.

It is LLNL's recommendation that the TWB be installed at a single central AF site and that the mappings be centrally controlled and disseminated.

1.3 GST Concepts

The GST was created to allow the builder of a translation to accomplish the mapping of the data from one format to another by actually doing the actions on a "workbench" while recording those actions in tables for continued work or later modification. This translator is an "anything-to-anything" translator in that it can any form of inbound file and convert it to any form of outbound file.

The Translator's Workbench (TWB) portion of the GST allows a user to build a translation from an Input Document to an Output Document using the tools available and a "cut and paste" process. This results in a set of tables which are the instructions required to accomplish a translation. These tables are then kept in specific translation directories.

A second part of the GST is the Translator Engine (TE) which executes the instructions created on the TWB. When a translation is to be executed, you go to the directory where the tables are stored, call the TE and indicate the filename to be translated.

1.4 Document Overview

This GST User's Guide was written for Release 1 of the LLNL EC/EDI GST application. It explains how to access and use the GST TWB application to review, edit, create, and delete transaction mappings.

The user interface to the GST application runs on Sun workstations running a X11 windows manager.

Information regarding the internal description of the GST are in the *GATEC GST Internal Description and Maintenance Guide*.

1.4.1 Document Conventions

The following conventions are used throughout this guide:

Boldface Used to highlight commands and prompts. It indicates the exact command or text to be entered.

`Courier` Used to provide examples of screen displays on your terminal. These examples are usually enclosed in a box.

ENTER Press the **ENTER** key. This key may be labeled Enter, Carriage Return, Return, or shown as a down and left arrow on your keyboard.

CTRL-d Press the **CTRL** key, hold it down and then press the d key. This key may be labeled CNTL or Control. Other characters may also be used in place of d.

ESC Press the **ESCAPE** key. This key may be labeled Esc, ESC, ESCAPE or Escape.

BKSP Press the **BACKSPACE** key.

SHIFT-d Press the **SHIFT** key, hold it down and then press the d key. Other characters may also be used in place of d.

1.5 Submitting Error Reports

If you suspect that you have encountered an error in the GST TWB, first contact your Systems Administrator for assistance. Many times, what appears to be an error is merely a misunderstanding in how the software operates. If your Systems Administrator confirms that it appears that an error has occurred, then try to categorize that error by experimenting with the software.

Although extensive testing and actual use should have located (and fixed) all of the possible GST software errors, it is possible that some software errors have slipped through and still exist. One way to tell whether or not an observed error is a software error is to repeat the exact same operation. Generally, software behaves exactly the same time after time, and thus the same error will occur if the same steps were followed. GST software errors should also be reported using the Error Report Form.

SECTION 2 GST Tutorial

This section presents a tutorial with examples as to how to use the Translator.

Any data element displayed on either the Input Document or in any of the tools available can be identified and transferred to the Output Document. The one failsafe method of doing this is as follows:

Place the pointer on the field to be transferred and double click on the left mouse button. The identified field should become highlighted.

Move the pointer to the Output Document and depress the right mouse button to display the Text Options menu. Without moving the pointer, release the mouse button and the string to be transferred will appear on the Output Document.

Move the pointer, dragging the string with it, to the desired position on the Output Document. Click the left mouse button to drop the string in that location. If the string is dropped at the end of a line, you will be asked "Append text to end of line?" If that is what you desire to do, answer "Yes". If not, answer "No" which will drop the string where you left it and you can either leave it that way or "UNDO" the operation and try it again.

Simple Translations

To begin with a simple tutorial of how the Translator's Workbench is used, let's try to translate the following file to an address like that normally seen on an envelope:

Name: John Smith
Address: 121 South Street City:
Oakmont State: VA
ZIP Code: 23231

Step 1: Click on Tools and select (by clicking on the "In" icon) the Inbound Document. Move this window to a clear location on your screen and click one of the mouse buttons to drop it there.

Step 2: Locate the test file on the directory listing and double click on its filename.

Step 3: Click on Tools and select (by clicking on the "Out" icon) the Outbound Document. Move this window to a clear location on your screen and click one of the mouse buttons to drop it there.

Step 4: Place the pointer in the Inbound Document, depress the right mouse button, and select Define Selection. This will bring up the Define Selection window. Select "Bounded". Place the pointer in the Delimiter data window and click the mouse button so that you can enter, instead of a <space>, a ":". This can be accomplished by pressing a backspace and then a ":" or by pressing Control-u and then typing the ":". Place the pointer in the Field # data window and click the mouse button. change the "1" to a "2" by either backspacing over the "1" and typing a "2" or by pressing Control-U and typing a "2". Press return to select Line = "0", Delimiter = ":" and Field # = "2". This will highlight the second field in the first line of the Input Document window.

Step 5: Click on Tools and select (by clicking on the Text Calculator icon) the Text Calculator. Move this window to a convenient clear space on your screen and click the mouse button to drop it there.

Step 6: Place the pointer in the data window of the Text Calculator and click the center mouse button to drop the current selection. " John Smith" should appear in the data window. Note that a recorder icon appears in the workbench window indicating an item was taken from the document and placed in the Text Calculator.

Step 7: Place the pointer on the "Trim Whitespace" button of the Text Calculator and click the mouse button to eliminate the blank space in front of the name. Note that a recorder icon appears in the workbench window indicating "Trim Whitespace centered to 0".

Step 8: Double click on the data window of the Text Calculator to highlight the data string (John Smith) there. Move the pointer to the Output Document window, depress the right mouse button to display the "Place Selection" menu choice, and release the mouse button. Now move the string to the desired location on the Output Document window and click the left mouse button to drop it there.

Step 9: Place the pointer on the line just below the Line Indicator on the Input Document window and click the left mouse button. This will move the Line Indicator down one line. Note that a line move icon is shown on the workbench window indicating a +1 line incrementation.

Step 10: Place the pointer on the line just below the Line Indicator on the Output Document window and click the left mouse button. This will move the Line Indicator down one line. Note that a line move icon is shown on the workbench window indicating a +1 line incrementation.

Repeat Steps 4 thru 10 to move the Address to the Output Document Screen.
Repeat Steps 4 thru 10 to move the City to the Output Document Screen.

Step 11: Place the pointer on the end of the line after the "t" in "Oakmont") and click the mouse button. This will place a white vertical bar at the end of the line to indicate the point where keyboard input will begin to appear.

Step 12: Type ", " and either a <RETURN> or move the pointer out of the Output Document window. the ", " should now appear at the end of the line.

Step 13: Place the pointer on the line just below the Line Indicator on the Input Document window and click the left mouse button. This will move the Line Indicator down one line. Note that a line move icon is shown on the workbench window indicating a +1 line incrementation.

Repeat Steps 4 thru 8 this time placing the "VA" at the end of the line which begins with "Oakmont". The end of the line is indicated by a vertical solid bar.

Step 14: Place the pointer on the end of the line after the "A" in "VA") and click the mouse button. This will place a white vertical bar at the end of the line to indicate the point where keyboard input will begin to appear.

Step 15: Type " " and either a <RETURN> or move the pointer out of the Output Document window to place this string in the window.

Step 16: Place the pointer on the line just below the Line Indicator on the Input Document window and click the left mouse button. This will move the Line Indicator down one line. Note that a line move icon is shown on the workbench window indicating a +1 line incrementation.

Repeat Steps 4 thru 8 to place the ZIP code on the end of the line starting with "Oakmont".

This completes the simple translation. You should now have a file that looks like this:

John Smith
121 South Street
Oakmont, VA 23231

From the top level menu, there are several selections. To make a selection, click the button with the mouse.

File Actions

New

This function is not currently implemented as it is easily accomplished by copying the tables to be used in the TWB session into the working directory and calling TWB to execute them.

Load

This function loads a specific set of translation tables into the working directory so that that translation can be run or worked on.

Save

This function allows the operator to save the current translation tables and all changes back to the working directory.

Save as

This function allows the operator to save the current translation tables and all changes to a directory of choice.

Quit

Exits the TWB.

Tools

Inbound Document

All translations must start with an inbound document from which elements of data will be translated to the Output Document. This will bring up a window for the inbound document and a selection window from which a specific file must be specified.

Outbound Document

The outbound document is the output of the translation. It will contain the exact format of the outbound file.

Branch

This is a logical decision table which, given certain decision criteria (index) , will result in going down certain paths (procedures) in the translations. There can be single or multiple inputs resulting in a single decision path. In addition, the Procedure name can be used as data in the output screen.

The menu choices on this Branch Table are: **Actions**, **Options**, **Rows**, and **Columns**.

Actions

There are three possible **Actions**: Lookup, Clear Table, and Load Table.

Lookup

By far the most commonly used of these is Lookup. This is used when all data is filled into the tables and you desire to execute the decisions they represent.

Clear Table

Clear Table will clear all entries from the table and allow you to start all over again with a fresh display.

Load Table

Load Table allows you to select a file from which the rows and columns of your table will be filled in.

Files prepared for this purpose must have the fields separated by ":" so that they are properly filled into the table and the table must be sized to accommodate all of the data in the file. The default Branch Table starts with two Rows and one Index column and one Procedure column.

Options

The only option here is the Lock Table Option.

Lock Table

This is a protective device to limit changes to the table unless the lock is removed. When the lock is applied, a check mark will show in the Lock Table pull down.

Rows

There are five selections in the Rows pull down menu: **Insert New Row**, **Append New Row**, **Delete Row**, **Move Row Up**, and **Move Row Down**.

All actions are in relation to the cursor.

Insert New Row

To insert a new row, place the cursor in one of the data blocks by clicking the mouse button once while the pointer is in the block. Then click on the Rows menu option and select Insert New Row.

Append New Row

Append New Row appends a new row to the bottom of the table.

Delete Row

Delete Row deletes the row where the cursor is currently located.

Move Row Up/Down

Move Row Up/Down moves the row where the cursor is currently located in the desired direction.

Columns

There are two choices in the Columns menu: **New Index Column** or **Delete Column**.

New Index Column

New Index Column adds a new column to the right of existing index columns.

Delete Column

Delete Columns deletes the column where the cursor is currently located.

To the right of the Index column is the specification column which identifies the type of data upon which you wish the decision made or a category of data. The choices are:

"**=**" which allows a specific string to be the decision data

"**is Anything**" which allows any string to be acceptable within the decision.

"**Not Ln**" which allows you to specify a minimum and maximum length selection criteria.

"**Length**" which allows you to specify a minimum and maximum length selection criteria.

"**is Not Filled**" which allows you to select on fields that are not completely filled with characters.

"**is Filled**" which allows you to select on fields that are completely filled.

"**is NOT Blank**" which allows you to select on fields that are not completely blank.

"**is Blank**" which allows you to select on fields that are completely blank.

"**is NOT Numeric**" which allows you to select on fields that are not completely numeric.

"**is Numeric**" which allows you to select on fields that are completely numeric.

"**NOT In**" which allows you to specify several strings for which the selected string is not a member.

"**In Set**" which allows you to specify more than one string which could match the selected string.

"**NOT =**" which allows you to select items that are not in the selected string.

The Procedure column names can be set by placing the pointer in the window desired and typing Ctrl-U. This will highlight the "<no name>" default in the window and allow you to type the desired Procedure name in the window. This name will appear in the window above the Procedure column if that particular logical path is chosen and can be used for information purposes or as actual data in the Output Document.

X12 Branch

The X12 Branch Table serves the same purpose as the basic branch table however, it incorporates the X12 syntax into the logic decisions. Index is called identifier, the data segment requirement and maximum use are specified, and the resulting Procedure is the result as in the Branch Table.

Since the X12 is structured, there is only one identifier column allowed and the menu choice "Columns" is not available.

When creating the input decisions based upon X12 transactions the data segments must be specified, the requirement (M = Mandatory, O = Optional, F = Floating, M> Greater than Mandatory, or O> Greater than Optional), and the maximum iterations..

Data Table

The data table is used to lookup or convert a code or set of codes to a resulting code or set of data. The menu options of Actions, Options, Rows are the same as the Branch Table however, the Columns choice differs. In the case of the Data Table, there can be more than one Index and there can be more than one Result from a given set of Indices. In a simple example of the use of the Data Table, the conversion of single alpha codes to their numeric equivalents would include a column of alpha codes and a column of corresponding numeric equivalents. When the Index window is filled (above the "Index" title) with a alpha code, the resulting numeric code will appear in the result window (above the "Result" title).

Calculator

The Calculator allows arithmetic calculation to occur or it can act as a counter within the translation. One feature of the calculator is that it can generate a unique nine digit number for use in the Output Document. This feature is activated by clicking on the "UNIQUE" button of the calculator.

Date Converter

The Date Converter is a calendar conversion table which allows the builder of translations to convert dates into various formats to meet the requirements of the Output Documents. Specifically, dates in the format of YYMMDD, YYDDD, YDDD, or YY/MM/DD. In addition, the date converter will allow the translator to calculate a date given a date in one of two formats: YYMMDD or YMM.

The Date Converter works in one of two ways:

The current date can be generated by placing the pointer in the YYMMDD data window and pressing the right mouse button. This will provide a menu window with the only implemented choice of "Get Date Stamp". When the pointer is moved to this choice and the mouse button is released, the current date in the various formats is displayed in all of the date windows and is available for use in the Output Document.

A date can be cut from the Input Document, pasted into the appropriate date window of the Date Converter and the date will be converted to the various date formats for use in the Output Document.

Text Calculator

The Text Calculator fulfills a number of functions in manipulating text for inclusion in the Output Document.

It is used to eliminate white space (blank spaces or specified characters) for either end of a string.

It is used to shorten (truncate) a string from either the left, right or center of the string.

It can expand or fill a string with blanks or specified characters to fill minimum length fields.

It can be used to left or right justify information within a specific length field.

It can be used to compare values to determine whether one is greater than, less than, or equal to the other.

To use the Text Calculator, simply cut and past the string to be manipulated into the top data window, select the operations desired (i.e., Trim Whitespace, or Length = 6 Right/Truncate).

When comparing two values, cut and paste the first value into one of the two lower data windows and cut and paste the other into the other data window. The evaluation (>, <, or =) will appear in the center between the two values.

Options

Zoom In

This option allows you to display only the branch instructions of the branch in which the cursor is located within the Translator's Workbench work area.

Zoom Out

This option toggles the Zoom In off.

Animated Playback

This option activates the buttons on all of the displayed tools to show which instructions were given and in what sequence.

Automated Zooming

Automatic Scrolling

The default for this option is on. It causes the Translator's Workbench display to automatically scroll down the instruction sequence as the translation is played or unplayed.

Automatic Open/Close

The default for this option is on. It causes the Translator's Workbench display to automatically open each decision branch as the translation is played or unplayed.

Fast and Ugly Refresh

This option turns off all automatic scrolling and branch opening activity on the Translator's Workbench, Input Document, and Output Document windows so that the translation will run faster.

Stop in Empty Procedures

This option allows the builder of a translation to run the translation on different sample Input Documents and the translation will stop in any branch which does not contain any instructions. Therefore, an unfinished translation can be tested against various test files and the unfinished paths can be completed based upon differing input files.

Recorder Buttons

Unstep

This allows the translation builder to back up one step in the translation.

Unplay

This allows the translation builder to play backwards through the translation steps.

Stop

This performs two functions: (1) it stops a playing or unplaying translation or (2) if the window has been scrolled to another location in the translation, it returns the window display to the current location of the cursor.

Play

This allows the translation to be played forward.

Step

This allows the translation builder to step forward, one step at at time, through the translation.

Undo

This function erases the instruction just above the cursor.

Cut

This function erases the instruction just below the cursor.

Document Loading

Translation tables are stored in directories within a specific working directory. This option will display a listing of the translation directories. To select a specific stored translation, place the pointer on the desired directory entry and double click on it. The selection will appear in the "Enter filename:" window. Then select file 53 to actually load the translation tables into the Translator's Workbench working directory.

Text Options (Inbound Document)

The Text Options menu appears when the pointer is in the Input Document window and the right mouse button is depressed. There are three options: Define Selection, Reset Cursor, and Delimiter.

Defining Selections

The Defining Selections window appears when the pointer is in the Input Document window and the right mouse button is depressed on Define Selection.

Static

This option allows the operator to define a data location by specifying the From;Line, From;Column, To;Line, and To;Column of the desired field.

Search

This option allows the operator to search from the current location of the line indicator to the bottom of the document for the specified string. The search defaults to "Constant Pattern". "Regular

Expression" is not implemented. If "Current Selection" is selected and there is a current selection, that identified string will be used in the search.

Bounded

This option allows the operator to identify the data within a certain delimited field on the current line. The delimiter and field number can be specified.

Reset Cursor

This option allows the operator to reset the cursor to the top of the document.

Delimiter

This option allows the operator to set a default delimiter for any document.

Text Options (Outbound Document)

Define Selection

This option works very much the same as the Define Selection in the Inbound Document.

Reset Cursor

This option works very much the same as the Reset Cursor in the Inbound Document.

Place Type In

This option is not implemented and will crash the translation is used.

Place Selection (Default)

This is the "paste" portion of the cut and paste operation. When a data item is highlighted, selecting this option will bring the selected string to the Output Document and allow the placement of the string on the document by clicking the left mouse button.

Place Date Stamp

This option allows for the current system date (in the MM/DD/YY format) to be selected for placement on the Output Document.

Place Time Stamp

This option allows for the current system time (in the HHMM format) to be selected for placement on the Output Document.

Load Template

This option allows the operator to select a known format for inclusion in the Output Document. There are known bugs in this selection and it is not recommended for use.

Write To File

This option allows the operator to save the output of the partially completed or completed translation to an existing file or to a new file name. When selected, a data directory will appear and an existing file name can be selected or a new file name can be typed into the entry window.

The Cut and Paste Process

There are several ways that data can be entered into the Output Document. All involve some version of first cutting or identifying the text string to be transferred and then pasting or moving the identified string to the proper location on the Output Document and placing it there.

In general, text strings may be taken directly from the Input Document by placing the pointer at the desired beginning of the desired text, holding the left mouse button down, dragging the pointer to the end of the desired text and releasing the button. This will cause the identified text string to be highlighted. If the entire line of text or the end of the desired text should happen to end at the end of the text line, a "Select to end of line?" question will be asked with the standard "Yes" and "No" answers.

Once the desired text string is identified, move the pointer to the Output Document, press the right mouse button on "Place Selection", and release the button. The desired highlighted text will then appear in the Output Document and can be dragged to the desired location and dropped by clicking on the left mouse button.

The second method is getting a text string from one of the tools created earlier in the translation. A similar technique is used to move this text into the Output Document except to highlight the text string, place the pointer on the desired string and double click on the left mouse button. This text can then be placed in the Output Document in the same way as the previously highlighted text from the Input Document was moved.

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